

REMARKS

Claims 1-14, 17-19, 21, and 22 are pending and stand rejected. Claims 15, 16, and 20 have been cancelled. Claims 2, 3, 11-14, 17, 21, and 22 have been amended. For at least the reasons explained below, the Applicants respectfully request the Examiner to withdraw the rejections and pass the application on to issuance.

CLAIM OBJECTIONS: The Examiner objected to Claim 11, 12, and 22. Claim 11 has been amended to correct a typographical error. Claim 12 has been amended to further clarify that which is being claimed, however not in the manner as suggested by the Examiner. Claim 22 has been amended as suggested by the Examiner to further clarify that which is being claimed.

CLAIM REJECTIONS – 35 USC § 102: The Examiner rejected Claims 1-6 and 10-21 as being anticipated by USPN 6,070,022 issued to Kobayashi.

As noted by the Examiner, Kobayashi discloses:

an electrophotographic printer with a toner cartridge that has a memory. The memory stores a count of a number of sheets printed, which is periodically updated by the device CPU. The memory also stores "sensitivity information" in a table which relates the number of prints to the effect the number of prints has on the image. Based on the sensitivity information and the count stored in the memory, the CPU adjusts baseline development bias voltages to provide optimum prints results throughout the life of the cartridge (column 9, line 22-column 10, line 56).

The Examiner's summary provides an inaccurate glimpse of Kobayashi's teachings. In short, Kobayashi teaches a cartridge with a memory for sensitivity information for achieving various exposed portion potentials of a drum. Kobayashi, col. 8, lines 46-62. The memory can also store a running print count. Kobayashi, col. 9, lines 54-65.

Kobayashi discloses a printer body (90) having cartridge memory (10) contained in a photosensitive drum cartridge (100) and a CPU (11) and ROM (12) contained in the printer body (90). The CPU (11) and ROM (12) are separate from the cartridge (100). See Kobayashi, Figs. 7 and 8. The CPU (11) reads data from memory (10) in cartridge (100) and treats that data in accordance with information in the ROM (12). Kobayashi, col. 7, lines 35-50. More particularly, Kobayashi's cartridge memory (10) stores sensitivity information. Kobayashi, col. 8, lines 46-29. The sensitivity information is divided into ten groups, 0-9. Kobayashi, col. 8, lines 49-53. The sensitivity information (K) for each group indicates the sensitivity in which the exposed portion potential of the drum (1) falls within a specified range. Kobayashi, col. 8, lines 53-62.

Kobayashi's ROM (12), which is not part of cartridge (100), stores developing bias voltages (V_{bias}) corresponding the various values of K in cartridge memory (10). Kobayashi, col. 8, lines 63-67. The developing bias voltage controls the density of the printed image. Kobayashi, col. 8, lines 63-67. See, e.g., Kobayashi, col. 9, lines 1-11 and Fig. 14.

For calibration, Kobayashi's printer includes sensors for determining if a test image formed on the drum (1) matches a particular density. See Kobayashi, col. 6, line 62 through col. 7, line 11. Kobayashi teaches reading the sensitivity data K from cartridge memory (10). Kobayashi, col. 8, lines 46-49 and step S1 in Fig. 13. The developing bias corresponding to the sensitivity K is obtained from ROM (12). Kobayashi, col. 8, lines 63-67 and step S2 in Fig. 13. A different test image is produced according to each developing bias obtained. Kobayashi, col. 9, lines 11-13 and step S3 in Fig. 13. The printer, using the sensors, scans each test image to identify the density of each. Kobayashi, col. 9, lines 15-18. The developing bias used for the test image satisfying a particular density of 1.0 is then identified. Kobayashi, col. 9, lines 18-20.

To summarize, Kobayashi teaches that the developing bias used to form an image of a desired density is selected from ROM (12) based upon the sensitivity K of drum (1) stored in cartridge memory (10).

Kobayashi also teaches that the cartridge memory (10) can be used to store a running print count and that ROM (12) can store a correlation between the print count and change in "exposed portion potential." Kobayashi, col. 10, lines 37-39 and 50-56. That developing bias (obtained from ROM (12)) for producing each test image on the drum (1) can then be adjusted based on a correlation between the running print count and the change in exposed portion potential. Kobayashi, col. 10, lines 50-56.

Claim 1 is directed to a computer readable medium integrated into a removable cartridge for an image forming device. The medium is programmed with a plurality of image enhancement data sets and data set selection criteria for selecting from among the image enhancement data sets.

Kobayashi does not teach or suggest a computer readable medium integrated into a removable cartridge where the medium is programmed with selection criteria. As described above, Kobayashi's cartridge memory (10) is not programmed with image enhancement data sets or with selection criteria for selecting from among the image enhancement data sets. Kobayashi's cartridge memory (10) simply contains a running print count and sensitivity information K corresponding to each of a number various sensitivities in which the exposed portion potential of the drum falls within a corresponding range. See Kobayashi, col. 8, lines 56-62. As used in Kobayashi cartridge memory (10), a running print count is not selection criteria and sensitivity information is not selection criteria.

The Examiner mistakenly asserts that Kobayashi's cartridge memory (10) contains "(table with entry sets relating number of prints to bias voltage, column 10, lines 40-56)." The Examiner mistakenly equates this information with the plurality of image enhancement data sets required by Claim 1. That information cannot be properly equated with image enhancement data sets. Moreover, that information is stored in Kobayashi's ROM (12) and not in cartridge memory (10). See Kobayashi, col.10, lines 50-56. ROM (12) is contained in Kobayashi's printer housing (90) and not in cartridge (100).

For at least these reasons, Claim 1 is clearly patentable over Kobayashi as are Claims 2-4 which depend from Claim 1.

Claim 5 is directed to a computer readable medium integrated into a removable cartridge that includes a printing component for an image forming device. The medium is formatted to store a state variable reflecting a state of the printing component and programmed with a plurality of image enhancement data sets and data set selection criteria that can be processed with the state variable to select from among the image enhancement data sets.

Kobayashi does not teach or suggest a computer readable medium integrated in a removable cartridge where that medium is programmed to store a plurality of image enhancement data sets and data set selection criteria that can be processed with the state variable to select from among the image enhancement data sets.

Again, the Examiner mistakenly asserts that Kobayashi's cartridge memory (10) contains a table that "stores data relating the accumulated print number to the bias voltage, column 10, lines 40-56." The Examiner also mistakenly equates this table with the plurality of image enhancement data sets required by Claim 5. Moreover, that table is clearly stored in Kobayashi's ROM (12) and not in cartridge memory (10). See Kobayashi, col.10, lines 50-56. ROM (12) is contained in Kobayashi's printer housing (90) and not in cartridge (100).

Claim 5 also requires that the cartridge integrated medium be programmed with data set selection criteria that can be processed with the state variable to select from among the image enhancement data sets. The Examiner equates Kobayashi's running print count with both the state variable and the data set selection criteria. The Examiner's position is not logical. Claim 5 plainly requires that the data set selection criteria is to be processed with the state variable to select an image enhancement data set. Kobayashi's running print

count cannot be processed with itself to select anything let alone to select an image enhancement data set. Instead, Kobayashi's running print count is processed with data stored in Kobayashi's ROM (12) and not with any data contained in cartridge memory (10).

For at least these reasons Claim 5 is clearly patentable over Kobayashi.

Claim 6 is directed to a removable cartridge for an image forming device. The cartridge includes:

- a printing component that can be utilized by the image forming device to assist in producing a printed image; and
- a memory programmed with a plurality of image enhancement data sets and data set selection criteria for selecting from among the image enhancement data sets.

Like Claim 1, Claim 6 requires that the cartridge include a memory programmed with a plurality of image enhancement data sets and data set selection criteria for selecting from among the image enhancement data sets. For at least the same reasons Claim 1 is patentable, so too are Claim 6 and Claims 7-9 which depend from Claim 6 clearly patentable over Kobayashi.

Claim 10 is directed to a removable cartridge for an image forming device. The cartridge includes:

- a printing component that can be utilized by the image forming device to assist in producing a printed image; and
- a memory formatted to store a state variable reflecting a state of the printing component and programmed with a plurality of image enhancement data sets and data set selection criteria that can be processed with the state variable to select from among the image enhancement data sets.

Like Claim 5, Claim 10 requires that the cartridge include a memory programmed with a plurality of image enhancement data sets and data set selection criteria that can be processed with the state variable to select from among the image enhancement data sets. For at least the same reasons Claim 5, is patentable so too is Claim 10 clearly patentable over Kobayashi.

Claim 11 is directed to an image enhancement method and recites the following steps:

- obtaining data set selection criteria from a memory integrated into a removable cartridge for an image forming device;
- processing the data set selection criteria to select an image enhancement data set from a plurality of image enhancement data sets contained in the memory integrated into the removable cartridge; and
- implementing an image enhancement technique according to the selected image enhancement data set.

As made clear with Claim 1, Kobayashi's cartridge memory (10) does not contain data set selection criteria. Consequently Kobayashi cannot teach or suggest a method step for obtaining data set selection criteria from a memory integrated into a removable cartridge for an image forming device.

Moreover, Kobayashi's cartridge memory (10) does not store image enhancement data sets. Consequently, Kobayashi cannot teach processing the data set selection criteria to select an image enhancement data set from a plurality of image enhancement data sets contained in the memory integrated into the removable cartridge.

For at least these reasons Claim 11, is clearly patentable over Kobayashi as are claims 12-14 which depend from Claim 11

Claims 15, 16, and 20 have been cancelled.

Claim 17 is directed to a computer readable medium having instructions for implementing the method of Claim 11. For the same reason Claim 11 is patentable, so too are Claims 17 and Claims 18, 19, and 21 which depend from Claim 17 clearly patentable over Kobayashi.

CLAIM REJECTIONS – 35 USC § 102: The Examiner rejected Claim 22 under §102 as being anticipated by USPN 6,158,837 issued to Hilton. Hilton is directed to an ink printer that can determine if an installed cartridge contains qualified ink and gives a user the option of printing with non-qualified ink. See, e.g., Hilton, Abstract.

Claim 22 is directed to an image enhancement system for an image forming device and recites the following elements:

- a device memory storing default image enhancement data, and
- execution logic configured to determine if cartridge image enhancement data is present and to implement the cartridge image enhancement data, and if the cartridge image enhancement data is not present, the execution logic is configured to implement the default image enhancement data.

Rejecting Claim 22, the Examiner asserts that the first element above is taught by Hilton, col. 9, lines 61-67. That passage, and more, is reproduced as follows:

FIGS. 6-9 are flow charts showing the operation of a control system for a printer having a normal printing mode and a non-normal printing mode. The non-normal printing mode enables a customer to have the option of using a cartridge with non-qualified ink and, though such printing is conducted in an out-of-warranty operation, it minimizes, if not eliminating, the potential detrimental effects thereof on the printer. Whenever the printer 10 is powered up by step 70, an initialization routine is entered in which the controller

checks to see if all cartridges have been installed at step 72. If not, the missing cartridges are installed by the customer at step 73. If all cartridges are installed, the identification number of each cartridge is read at step 74 and checked for authorization at step 76 by comparing the numbers with the numbers stored in the printer controller memory for matches. If there are no identification numbers on the cartridges or there are no matches, the printer display panel 35 or personal computer monitor 37 displays "Wrong Cartridge" at step 77. If a competitor supplied cartridge is installed without an authorized identification number or a refilled cartridge with revised identification number is installed by the customer, then such cartridge is determined to contain non-qualified ink and may still be used but only in a non-normal printing mode as described before. To use a cartridge with non-qualified ink, the print start button 33 is pushed at step 78. The printer controller automatically changes the printing mode from the normal printing mode to the non-normal printing mode at step 79 and, at step 80, the printer display panel or personal computer monitor displays "Out-of-Warranty Printing" which remains displayed while printing in the non-normal printing mode. Next, at step 82, the printer controller cycles up the printer for non-normal printing, which includes ejecting a number of ink droplets at the maintenance station, usually twice the number for the normal printing mode, cleans the printhead nozzle face at least twice the number for normal printing, reduces the frequency of the droplet ejection (firing rate), and slows down the printing speed to provide more drying time for the printed sheets.

Hilton, col. 9, line 39 through col. 10, line 10. Nothing in this passage teaches or even suggests a device memory storing default image enhancement data.

The Examiner seems to be equating the identification number stored on the cartridge (Hilton, col. 9, lines 50-51) with cartridge image enhancement data.

This is simply not logical. Hilton's identification number is not image enhancement data. Hilton's identification numbers cannot be implemented. They are merely compared with numbers in Hilton's printer controller memory. Hilton, col. 9, lines 50-54. Should the Examiner persist, the Applicants respectfully request the Examiner to specifically identify and explain where in this passage (or elsewhere in Hilton) such a device memory is taught.

The Examiner asserts that the second element of Claim 22 is taught by Hilton, col. 9, line 39 through col. 10, line 10 and Figs. 6-9. Nothing in that passage, quoted above, or the Hilton's figures teaches or suggests execution logic configured in the manner required by Claim 22. Should the Examiner persist, the Applicants respectfully request the Examiner to specifically identify and explain where in this passage and figures (or elsewhere in Hilton) the existence of execution logic configured to

- determine if cartridge image enhancement data is present and to implement the cartridge image enhancement data; and
- implement the default image enhancement data if the cartridge image enhancement data is not present.


For at least these reasons, Claim 22 is clearly patentable over Hilton.

CLAIM REJECTIONS – 35 USC § 103: The Examiner rejected Claims 7-9 under §103 citing Kobayashi in view of U.S. Pub. No. 2002/0021906 to Yoshizaki. Each of Claims 7-9 is clearly patentable over Kobayashi as they all depend from Claim 6 – an allowable base claim.

Yoshizaki, alone or even if combined with Kobayashi, fails to teach or suggest a cartridge that includes a memory programmed with a plurality of image enhancement data sets and data set selection criteria for selecting from among the image enhancement data sets in the manner required by Claim 6. For at least this reason, claims 7-9 are clearly patentable over the cited references.

CONCLUSION: The foregoing is believed to be a complete response to the outstanding Office Action. Claims 1-14, 17-19, 21, and 22 are all felt to be in condition for allowance. Consequently, early and favorable action allowing these claims and passing the application to issue is earnestly solicited. The foregoing is believed to be a complete response to the outstanding Office Action.

Respectfully submitted,
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